CLAIMS

1. A substrate processing apparatus, comprising:

a processing vessel that defines a processing space;

an ultraviolet light source that irradiates ultraviolet light into the processing vessel;

an opaque case made of quartz that covers an inner wall of the processing vessel and includes an opening arranged to face against the ultraviolet light source through which opening the ultraviolet light passes;

a heater portion that heats a substrate introduced inside the opaque case to a predetermined temperature;

a holding member that holds the substrate above the heater portion; and

rotational drive means for rotating an axis of the holding member that penetrates through the heater portion.

2. The substrate processing apparatus as claimed in claim 1, wherein the opaque case includes

a side portion case that is arranged

to surround a periphery of the substrate held by the holding member and includes a first opening through which the substrate passes;

a top portion case that is arranged to cover a top of the side portion case and includes a second opening that is arranged to face against the ultraviolet light source; and

a bottom portion case that is arranged to cover a bottom of the side portion case and includes a third opening through which a lifter member that raises and lowers the substrate passes.

3. The substrate processing apparatus as claimed in claim 2, wherein the opaque case includes a cylinder case that covers an outer periphery of the heater portion.

4. The substrate processing apparatus as claimed in claim 3, wherein the heater portion accommodates a heating element that is contained inside a transparent case made of quartz.

5. The substrate processing apparatus as claimed in claim 4, wherein an internal space of the opaque case and an internal space of the transparent case are depressurized at the same time.

6. The substrate processing apparatus as claimed in claim 4, wherein a SiC heater plate that is heated by the heating element is provided on a top surface of the transparent case, the heater plate being introduced inside the opaque case via the third opening of the bottom portion case.

7. The substrate processing apparatus as claimed in claim 1, further comprising:

a UV protective glass window blocking ultraviolet light that is provided at a side surface of the processing vessel.

8. The substrate processing apparatus as claimed in claim 7, wherein the UV protective glass window includes

a first window that is arranged at a

position shifted toward one side with respect to a periphery of the substrate held by the holding member; and

a second window that is arranged at a position shifted toward another side with respect to the periphery of the substrate held by the holding member.

9. The substrate processing apparatus as claimed in claim 7, wherein the UV glass window is configured into a dual structure including UV protective glass that blocks ultraviolet light and transparent quartz that are arranged to face against each other.

10. The substrate processing apparatus as claimed in claim 9, wherein the UV glass window includes

a first window that is arranged at a position shifted toward one side with respect to a periphery of the substrate held by the holding member; and

a second window that is arranged at a position shifted toward another side with respect to the periphery of the substrate held by the holding member.

11. The substrate processing apparatus as claimed in claim 1, wherein the holding member includes a plurality of arm portions that are made of transparent quartz, the arm portions being arranged to support a bottom portion of the substrate.

12. The substrate processing apparatus as claimed in claim 11, wherein the arm portions support the bottom portion of the substrate through point connection with said bottom portion.